Antimicrobial stewardship: an international emergency

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'You must be the change you wish to see in the world.'

(Mahatma Gandhi)

The 'European Antibiotic Awareness Day' will take place on 18 November, and is now a well-known event, 6 years after its first launch by the European Centre for Disease Prevention and Control [1]. Bacterial resistance is increasing worldwide; it has been identified as one of the most serious public health issues of our time by the WHO, and was qualified as a 'problem so serious that it threatens the achievements of modern medicine. A post-antibiotic era—in which common infections and minor injuries can kill—far from being an apocalyptic fantasy, is instead a very real possibility for the 21st century' [2]. If we are not to face such a frightening situation, international awareness of the issue is urgently needed, followed by strong and courageous global and coordinated actions [3].

Scientists, including infectious diseases specialists and clinical microbiologists, have been trying to raise awareness for more than a decade. The ESCMID has been particularly active, and created the ESCMID Study Group for Antibiotic Policies (https://www.escmid.org/research_projects/study_groups/antibiotic_policies/) [4]. In this issue, Carlet *et al.* [5] demonstrate why bacterial resistance is now a geopolitical issue, and present suggestions to tackle this global threat. If national and local activities are important, the involvement and commitment of national and international policy-makers and politicians are necessary if solutions are to have a chance to be effective.

Politicians are concerned by public health issues, but also by the economic impact of bacterial resistance. In this issue, Gandra *et al.* [6] provide evidence of the disastrous influence of bacterial resistance on economics. The authors underline several factors that are often overlooked in studies assessing the economic impact of bacterial resistance: the increasing prevalence of resistant bacteria, the cost of infections caused by these resistant bacteria, and the deleterious effect of bacterial resistance outside of the hospital or the healthcare setting.

Three main areas need to be targeted in order to try to curb bacterial resistance, both in human and veterinary medicine: antimicrobial stewardship, hygiene and vaccination, and measures to reduce the risk of bacterial spread in the environment. Antimicrobial stewardship programmes have proved their usefulness worldwide, but are not implemented everywhere, mostly because of lack of leadership and resources. In this issue, Huttner *et al.* [7] highlight some of the success stories of antimicrobial stewardship programmes, and describe the actions that have been taken, the outcomes that have been obtained, and the obstacles that have been met. They clearly demonstrate that antimicrobial stewardship programmes can and should be implemented worldwide, in all settings (primary care, long-term-care facilities, and hospitals).

Infectious diseases specialists, clinical microbiologists and clinical pharmacists must work together and constitute the core of the antimicrobial stewardship programmes. The value of infectious diseases specialists has been disputed for years, but has been increasingly acknowledged. Finally, in this issue, Pulcini *et al.* [8] provide strong evidence demonstrating the positive impact of infectious diseases specialists on antibiotic prescribing in hospitals. In this narrative review, intervention by infectious diseases specialists was associated with a significant improvement in the appropriateness of antibiotic prescribing, and with decreased antibiotic use in almost all included studies. Several studies also showed that intervention by infectious diseases specialists was associated with reduced length of stay, decreased mortality, a reduction in the prevalence of multiresistant bacteria, and a reduction in the costs of antibiotics.

In conclusion, bacterial resistance is an international emergency, and implementing antimicrobial stewardship programmes is a necessity; the scientific evidence is there, and the time for action is now.

Transparency Declaration

The authors declare no conflicts of interest.

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